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AN ADDRESS

DELIVERED BY

J. F. W. HERSCHEL, Esq.

PRESIDENT OF

THE ASTRONOMICAL SOCIETY OF LONDON;

On the occasion of the Delivery of

THE HONORARY MEDALS OF THAT SOCIETY,

On FEBRUARY 8, 1828,

TO

LIEUT.-GEN. SIR T. MACDOUGAL BRISBANE, K.C.B.

AND

JAMES DUNLOP, Esq.

GENTLEMEN,—In pursuance of the award of your Council, which you have just heard, I have now to call your attention to the subject of the honorary marks of this Society's approbation, which it is part of our business at this meeting to bestow. The selection of objects on which such distinction may most deservingly and most usefully be conferred, has been, in this instance, of much interest and some difficulty,—not from a paucity of claims, but from their variety and magnitude. On all sides, both abroad and at home, the spirit of Astronomical research and discovery has been diligently alive. The great work which has been commenced on the Continent, for the determination of the places of all the stars of our hemisphere in zones, has been continued with a patient ardour to which no words can do justice.—The heavens have been ransacked for double stars; and the results of the search, developing a most rich and unlooked-for harvest of striking discoveries, being the first fruits of the great telescope of Fraunhofer, have been consigned to immortality, in a work which does honour to its age and nation, and which has already been brilliantly rewarded in another quarter. The ingenuity of one of our own countrymen, has placed new, simple and powerful means in the hands of observers, for verifying the stability of their instruments, and determining their fluctuations. And in every quarter, to go no further in this detail, an activity worthy of the high ends and dignity of our science, has been remarkably displayed. Among so many important labours, however, some of which are yet awaiting their final completion, or receiving the last touches of their authors, the attention of your Council has been fixed, by the imposing mass of valuable observations which has emanated during a series of years, from the Observatory at Paramatta, established by the late governor



of the colony of New South Wales, Sir Thomas Macdougall Brisbane, one of our Vice-Presidents, long distinguished among us by his ardent love of Astronomy, and an intimate familiarity both with its theory and practice.

Nothing can be more interesting in the eyes of an European astronomer, especially to those whose field of research, like our own, is limited by a considerable northern latitude,—than the southern hemisphere, where a new heaven, as well as a new earth, is offered to his speculations; and where the distance, the novelty, and the grandeur of the scenes thus laid open to human inquiry, lend a character almost romantic to their pursuit.

A celestial surface equal to a fourth part of the whole area of the heavens, which is here for ever concealed from our sight, or whose extreme borders at least, if visible, are only feebly seen through the smoky vapours of our horizon,—affords to our antipodes the splendid prospect of constellations different from ours, and excelling them in brilliancy and richness. The vivid beauty of the Southern Cross has been sung by poets, and celebrated by the pen of the most accomplished of civilized travellers; and the shadowy lustre of the Magellanic clouds, has supplied imagery for the dim and doubtful mythology of the most barbarous nations upon earth. But it is the task of the Astronomer to open up these treasures of the southern sky, and display to mankind their secret and intimate relations. Apart, however, from speculative considerations, a perfect knowledge of the astronomy of the southern hemisphere is becoming daily an object of greater practical interest, now that civilization and intercourse are rapidly spreading through those distant regions,—that our own colonies are rising into importance,—and that the vast countries of South America are gradually assuming a station in the list of nations, corresponding with their extent and natural advantages. It is no longer possible to remain content with the limited and inaccurate knowledge we have hitherto possessed of southern stars, now that we have a new geography to create, and latitudes and longitudes without end, to determine by their aid. The advantages too, to be obtained, even for the perfect and refined astronomy of the north, by placing nearly a diameter of the globe, between the stations of observatories, and taking up the objects common to both hemispheres, in a point of view, and under circumstances so every way opposite to those which exist here, have been strongly pointed out by a venerable and illustrious member of this Society, in an elaborate paper published in its Memoirs, and would alone suffice to justify a high degree of interest, as due to every well conducted series of observations from that quarter. The observations of Halley at St. Helena, had made known the places of a moderate number of the brighter southern stars; but the only catalogue of any extent and accuracy, which existed previous to the establishment of the observatories of the Cape and Paramatta, was that of Lacaille, who spent three years at the Cape of Good Hope, and the Isles of France and Bourbon; and, though with very inadequate instrumental means, yet, by dint of the most indefatigable industry, succeeded in observing and registering upwards

of 10,000 stars. But by far the greater part of these observations have never been reduced; a selection only from them of 1942 of the principal ones, not amounting to a fifth of their whole number, having been formed into a catalogue, and published by this meritorious astronomer. It must be admitted, however, that the degree of accuracy stated by Lacaille himself to have been probably attained by him, is hardly such as to make us now very deeply regret their want of reduction, especially as the observations themselves are printed with every requisite for that purpose, when required. Still, however, from his method of observing, which was with a fixed telescope and rhomboidal network, his observations have what may be termed a dormant value, as they most probably give correct differences for each night's work; and when a catalogue of standard southern stars shall be completed, Lacaille's observations will become available, by regarding these as zero points, and referring all the rest to them.

Such was nearly, with little improvement, the state of the astronomy of the southern hemisphere, when Sir Thomas Brisbane was appointed governor of the Colony of New South Wales. The intention of our Government to found an observatory on the largest scale, at the Cape of Good Hope, was, indeed, already fixed; and the observer, a member of this Society, supplied with instruments sufficient for the purpose of constructing a preliminary catalogue, occupied himself with the necessary observations, while awaiting the arrival of those ultimately destined to adorn that establishment, and the building of his observatory. The approximate catalogue so constructed and reduced, containing all the southern stars observed by Lacaille, down to the 5th magnitude, is already printed by the Royal Society in their Transactions.

Sir Thomas Brisbane's attachment to Astronomy had ever been a prevailing principle of his mind, and one which even amidst the distractions of a military life of no ordinary degree of activity and adventure, he found means to indulge; and which never deserted him, however the calls of his country might demand his services in a different and more splendid career.

His appointment to the important office of governor of New South Wales, however, put it in his power to execute to their fullest extent and under the most favourable circumstances, plans of astronomical investigation, which to a private individual would have been utterly impracticable. The opportunity was embraced with eagerness. The best instruments,—consisting of an excellent transit of $5\frac{1}{2}$ feet focal length, by Troughton; a mural circle of two feet in diameter, the workmanship also of Troughton, and said to have been the model on which that of Greenwich was constructed, and which had long been in his possession; and a fine 16-inch repeating circle of Reichenbach,—were destined for this service: and two gentlemen engaged as assistants at considerable salaries; the one a foreigner of high estimation as a mathematician and calculator, the other Mr. Dunlop, of whom I shall presently have occasion to say much more. It ought to be

mentioned, that this noble equipage was furnished entirely from Sir Thomas's private fortune, and maintained wholly at his own expense. Immediately on his arrival in the colony in 1821, and so soon as an observatory could be erected, and the instruments established, the work of observation commenced, and continued with little interruption under the immediate superintendence and direction of Sir Thomas Brisbane himself, who, though the pressing and important duties of his high office would of necessity seldom admit of his devoting any material proportion of his time to actual observation, yet frequently took a personal share in the labours of the observatory, as a relaxation from higher duties, and in particular, a great portion of the transits were observed by himself.

The first fruits of this enterprise, were the observations of the December solstice of 1821, which were published in the *Astronomical Notices of Schumacher*; in which work also appear those of both the solstices of 1822, and a number of detached and occasional observations, which reached Europe at different times by a variety of channels, and found their way into that valuable collection. The solstices of 1823, were communicated by Sir Thomas Brisbane to this Society, in a letter to our late worthy president, together with a considerably extensive series of observations of principal stars, chiefly those visible in both hemispheres, and which have undergone a careful reduction and close scrutiny in the hands of Dr. Brinkley, the details of which, as well as the original observations, are printed in the first part of the second volume of the *Transactions of this Society*, and which justify, in the eyes of that experienced observer, as they must in those of every practical astronomer, a decided opinion of the great care and skill with which they have been made.

A great number of occasional observations,—such as eclipses, occultations, and observations of the planets Venus and Uranus, near their conjunctions and oppositions, and of comets from the same source,—are also printed in the same volume. One of the most remarkable single results we owe to the establishment of Sir Thomas Brisbane's observatory, consists in the re-discovery of the comet of Encke in its predicted place, on the 2d June 1822. The history of this extraordinary body is well known to all who hear me; and as its re-discovery at Paramatta by Mr. Rümker, has already been, on a former occasion, distinctly noticed and rewarded by this Society, there is no occasion that I should here enlarge on it; and yet I cannot help pausing a moment to figure the delight its celebrated discoverer must have experienced, to find the calculations, on whose exactness he had pledged himself, thus verified beyond the gaze of European eyes; and this strange visitant gliding, as if anxious to elude pursuit, into its primitive obscurity, thus arrested on the very eve of its escape, and held up to mankind,—a trophy at once of the certainty of our theories, and the progress of our civilization.

Observations of the length of the pendulum were not neglected by Sir Thomas Brisbane; and the determination of this important element at Paramatta, forms the subject of a highly interesting and

valuable communication made by him to the Royal Society, and printed by them in their Transactions for 1823, and discussed by Captain Kater with his usual care and exactness.

The remainder, and indeed the great mass of the observations made with the mural circle and the transit instrument, have at different periods been communicated to the Royal Society, and are for the present deposited in its archives. Forming our judgement only upon those of which an account has been publicly read at the meetings of that illustrious body, but which are understood to constitute only a comparatively small part of the whole,—they form one of the most interesting and important series which has ever been made, and must ever be regarded as marking a decided æra in the history of Southern Astronomy.

It is for this long catalogue of observations—whether scattered through the journals of Europe, printed in our own Transactions, or deposited as a precious charge in the care of a body so capable of appreciating their merits; but still more for the noble and disinterested example set by him in the establishment of an observatory on such a scale, in so distant a station, and which would have equally merited the present notice, had every observation perished in its conveyance home—that your Council have thought Sir Thomas Macdougall Brisbane deserving the distinction of a medal of this Society, which, as he is unable personally to attend this meeting, I will now deliver to his proxy, Mr. South.

MR. SOUTH.—We request you to transmit to Sir Thomas Brisbane this medal, accompanied with the strongest expressions of our admiration of the patriotic and princely support he has given to Astronomy, in regions so remote. It will be a source of honest pride to him while he lives, to reflect that the first brilliant trait of Australian history marks the æra of his government, and that his name will be identified with the future glories of that colony in ages yet to come, as the founder of her science. It is a distinction truly worthy of a British governor. The colonial acquisitions of other countries have been but too frequently wrested from unoffending inhabitants, and the first pages of their history blackened by ferocious conquests and tyrannical violence. The treasures of gold and silver they have yielded—the fruits of rapine—have proved the bane of those who gathered them; and in return, ignorance and bigotry have been the boons bestowed on them by their parent nations. Here, however, is a brighter prospect. Our first triumphs in those fair climes have been the peaceful ones of science; and the treasures they have transmitted to us, are imperishable records of useful knowledge, speedily to be returned with interest, to the improvement of their condition and their elevation in the scale of nations.

(The President then resumed his address to the Members, as follows:—)

I have now to call your attention, Gentlemen, to the award of another Medal, to Mr. Dunlop, who accompanied Sir Thomas Brisbane

in capacity of his assistant, and who, since the middle of the year 1823, when his companion Mr. Rümker left the observatory, remained in the sole charge of the instruments; and up to the period of the departure of his principal from the colony, continued an uninterrupted series of observations with a care and diligence seldom equalled, and never surpassed. In such cases it is not only the head which plans, but the hand which faithfully and promptly executes, that claims our applause. The most liberal provision of instrumental means would have been comparatively unavailing, had the spirit of him who supplied them, been seconded by any ordinary zeal on the part of his assistants. The records of this Society already alluded to, bear sufficient testimony to the merits of Mr. Rümker, and to our sense of them. In Mr. Dunlop were combined qualities rendering him of all others, the very individual fitted for the duties imposed on him—zealous, active, ready—but above all (and the combination is not an ordinary one), industrious and methodical. In the vast mass of observations made and registered by him, all is equable and smooth, as if the observations had all been made at a sitting:

“ Servatur ad imum
Qualis ab incepto processerit”—

no lacunæ—no long intervals of inactivity—nothing hurried or sketchy; but the same pains-taking, laborious filling in, pervading the whole,—marking that the observer's whole heart and soul were in his work, and that each individual observation possessed its own peculiar, though momentary, interest. Nor is this wonderful. The heavens visible to Europeans, have been so thoroughly examined, and their contents so carefully registered, that there is not the slightest rational probability of any thing new or uncommon offering itself to instruments of moderate power in the ordinary course of observation. Here, however, all was new;—for the optical power of Lacaille's telescope was far too feeble to afford much insight into the physical constitution of the objects determined with it: and thus all the excitement of discovery was maintained during every step in the progress of the work.

But to be susceptible of this excitement, so maintained, the observer must be animated by the true spirit of the Astronomer; and few have possessed this spirit in a greater degree than Mr. Dunlop. In a scientific point of view, therefore, he must be regarded as the associate, rather than the assistant of his employer; and their difference of situation becomes merged in their unity of sentiment and object.—These considerations alone would have rendered it impossible to your Council to disunite in any expression or mark of their approbation, individuals who have thus, each in his sphere, gone hand in hand together, towards the perfection of Southern Astronomy, even had the labours of Mr. Dunlop been confined to the ordinary business of an observatory, or to observations with fixed instruments. But this is very far from having been the case. The nebulous, as well as the sidereal heavens, have occupied his attention; and in the prosecution of this most delicate and difficult branch of Astronomy, he has availed himself entirely of his own resources,

in the most literal sense,—the instrument which he used being not simply his *own*, but the work of his own hands ; and the observations being performed by him after the departure of Sir Thomas Brisbane from the colony, at a personal sacrifice of his private interests, and in the face of difficulties which would have deterred any one not animated with a real and disinterested love of science from their prosecution. The results of these observations have been the description and determination of the places of upwards of 600 nebulae and clusters of stars. And when it is recollected that Lacaille was able to observe not more than about 40 or 50 of these curious objects, we may form some idea of the extent of this labour. In addition to these interesting results, Mr. Dunlop has amassed a copious and valuable collection of Southern double stars, which he is at present occupied in reducing and arranging ; and a variety of interesting and curious particulars relative to the magnitudes, colours, and other peculiarities of all the more conspicuous single ones.

Shut out as we are by our geographical situation from the actual contemplation of these wonders, the astronomers of Europe may view, with something approaching to envy, the lot of these their more fortunate brethren. The feeling, if an unworthy, is, however, but a passing one, and merges in that of admiration of their zeal and enterprise, and of gratitude for the information they have afforded us. In testimony of that admiration and that gratitude, on the part of this Society, towards Mr. Dunlop, I beg of you, Mr. South, to transmit to *him* also, this our medal, and to accompany it with the assurance that wheresoever his future fortunes may lead him—whether in the land which has already witnessed his meritorious labours—to complete and extend them, or in his native country, which is both able and willing to appreciate his value, to put the finishing stroke to the noble fabric he has been mainly instrumental in raising, by taking a leading part in the less exciting, but not less useful or indispensable work, of reducing the observations already made :—in either case he will be attended by our best wishes for his prosperity and happiness, and our confidence that science will continue to benefit by his exertions.



